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Imagery analysis report

Development of the CSA-NX-1 Naval SAM, China (S)

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25X1**DEVELOPMENT OF THE CSA-NX-1 NAVAL SAM, CHINA (S)**

1. (S/D) A planar-array, three-dimensional radar has recently been installed on a Chinese Jiangdong-class guided missile frigate (FFG). The installation of this probably indigenously designed and built radar signifies that the acquisition, fire-control, and launcher functions of the short-to-medium range CSA-NX-1 (the naval version of the CSA-X-2) naval SAM are now integrated for realistic testing/training on an operational combatant.

2. (S/D) The known evolution of the Chinese naval SAM began in February 1971, when a twin-arm SAM launcher was seen outside a checkout building at Jinxi Naval Weapons Research/Development/-Training Complex SSM [] on the Bohai Gulf (Figure 1). Subsequently, Jiangdong-class FFG unit 1 was built at Shanghai Naval Base and Shipyard Hodong [] between 1970 and 1972, and unit 2 was built at Shanghai Shipyard Chunghua [] between 1972 and 1974 (Figure 1). During construction, unit 1 was fitted with two twin-arm missile launchers; these were later identified as the same type seen earlier at Jinxi. Jiangdong-class FFG unit 2 has not yet been fitted with missile launchers or SAM-associated electronics.

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3. (S/D) The next indication that unit 1 was being prepared to test SAMs was the fitting with a dish-type radar fire-control director in early 1978 (Figure 2). The origin of the new radar fire-control director has not been determined. However, it is similar in appearance to the Italian RTN-10X radar antenna director. The RTN-10X has been in series production since 1972 and has been supplied extensively to the Italian and other foreign navies.¹

4. [] Equipped with its new radar fire-control director, unit 1 transited from Shanghai to Huludao Naval Base Shipyard and Port Facility [] (Figure 1) on the Bohai Gulf in November 1978. []

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5. [] Unit 1 was again observed in the Bohai Gulf in the fall of 1979 and was seen at Huludao on nine occasions between []

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[] The cruise missiles were launched from either one of the HOKU missile patrol boats based at Huludao to support cruise missile activities in the Bohai Gulf or from launch sites at Jinxi. The 1979 test cycle concluded with the [] firing of a CSA-NX-1 missile which reportedly hit a target cruise missile after a flight time of four to seven seconds.³

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6. (S/D) The 1978 and 1979 tests were monitored by optical and mobile electronics equipment at Jinxi. The existing monitoring capability at Jinxi was upgraded and expanded in October 1978, evidently in preparation for tracking and recording live CSA-NX-1 launches from unit 1.

7. (C) The existence of the CSA-NX-1 SAM was confirmed when China released a photograph in February 1980 showing two of the missiles atop the forward launcher on a Jiangdong-class FFG (Figure 3). The photograph shows two missiles with two groups of control surfaces, each with four fins.⁴

8. [] Evidence that the Chinese were developing a search/aquisition radar for the CSA-NX-1 missile system was observed at Jinxi on [] A new planar-array, three-dimensional radar had been installed on the roof of a control building adjacent to the naval gun test positions in the naval weapons/training area of the Jinxi Naval Research/Development/Training Complex SSM (Figure 4). []

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10. (S/D) [] the planar-array, three-dimensional radar was mounted on a pedestal atop a circular section of a control building at Area 5 (Figure 5). The radar was probably being tested when it was imaged, while rotating, on [] A second planar-array, three-dimensional radar was mounted on a probable test platform immediately adjacent to the control building on [] (Figure 5). This may indicate that unit 2 will also be fitted with the radar. Both radars were removed from Area 5 prior to [] Unit 1 had been fitted with the planar-array, three-dimensional radar when it was photographed on [] at Shanghai Naval Base and Shipyard International [] The radar was mounted on the main mast just above the radar fire-control director (Figure 6).

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11. (S/D) The installation of the planar-array, three-dimensional radar aboard unit 1 was confirmed on satellite imagery of [] when the ship was observed at Dinghai Destroyer Piers (BE [] moored outboard of Jiangdong-class FFG unit 2 (Figure 7). Subsequently, unit 1 departed the East Sea Fleet and arrived in the Bohai Gulf at Huludao by [] This is the third consecutive fall that this ship has operated in the Bohai Gulf, and, as in 1978 and 1979, the ship will probably participate in CSA-NX-1 testing/training, utilizing the optical and telemetry tracking facilities at Jinxi.

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FIGURE 1. LOCATIONS OF RECENT CSA-NX-1 NAVAL SAM ACTIVITY, CHINA

12. (S/D) If the 1980 tests prove successful, the Chinese will probably outfit unit 2 with the launchers and electronics equipment necessary for operating the CSA-NX-1 missile. Considering the time and effort already expended in the development of the CSA-X-2/CSA-NX-1 missile, it seems reasonable to assume that the Chinese envisage equipping not only unit 2 with the new missile but other combatants as well. The most obvious candidate for a CSA-NX-1 retrofit would be the Luda-class destroyer, the Chinese combatant most likely to operate in waters some distance from friendly air cover. Nine of these ships are presently operational in the Chinese Navy, while four others are either being outfitted or under construction. Other possibilities include the construction of additional Jiangdong-class FFG units or the development of an entirely new CSA-NX-1 equipped destroyer of frigate class. It is evident, however, that the Chinese have recognized the necessity of equipping their fleet with a naval SAM defense system—either the indigenous CSA-NX-1 or one acquired through the purchase of foreign equipment and/or technology.

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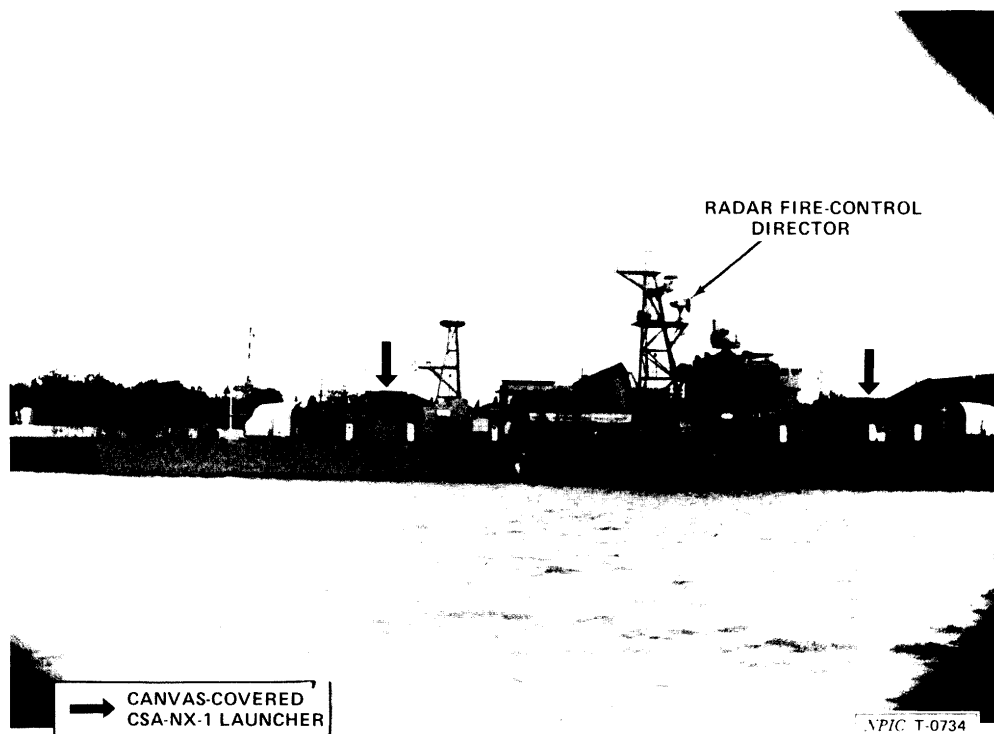


FIGURE 2. FIRST OBSERVATION OF A NEW DISH-TYPE RADAR FIRE-CONTROL DIRECTOR ON JIANGDONG-CLASS FFG UNIT 1, WUSUNG NAVAL BASE, SHANGHAI

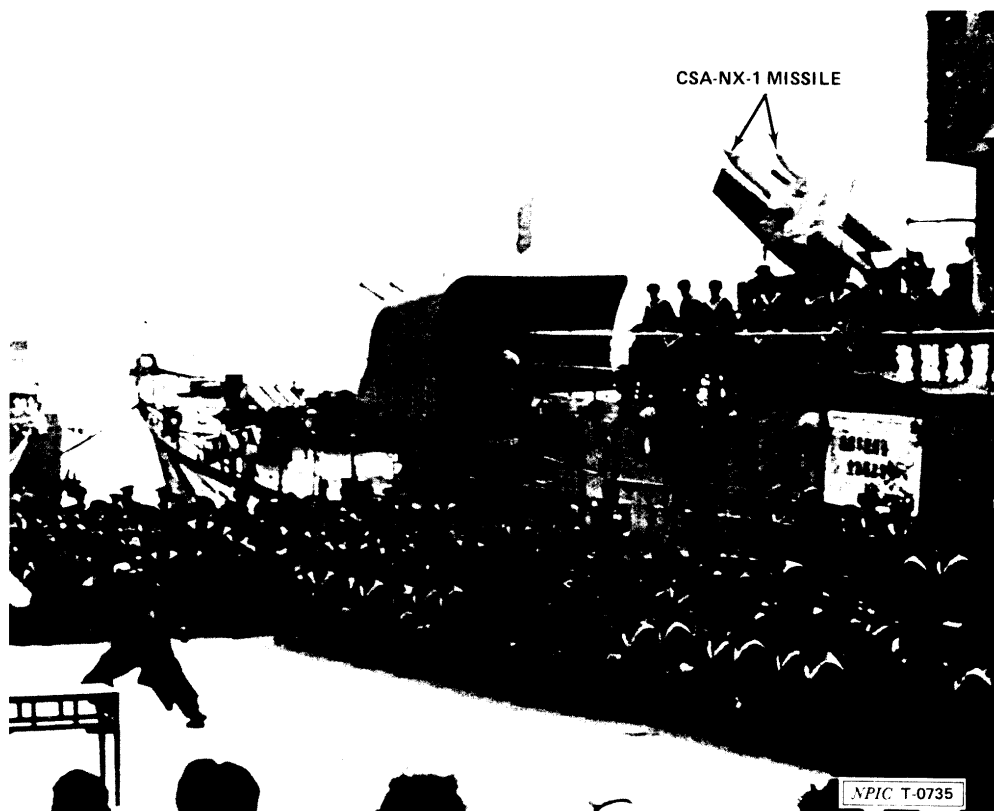


FIGURE 3. TWO CSA-NX-1 MISSILES ABOARD JIANGDONG-CLASS FFG. New China News Agency photograph.

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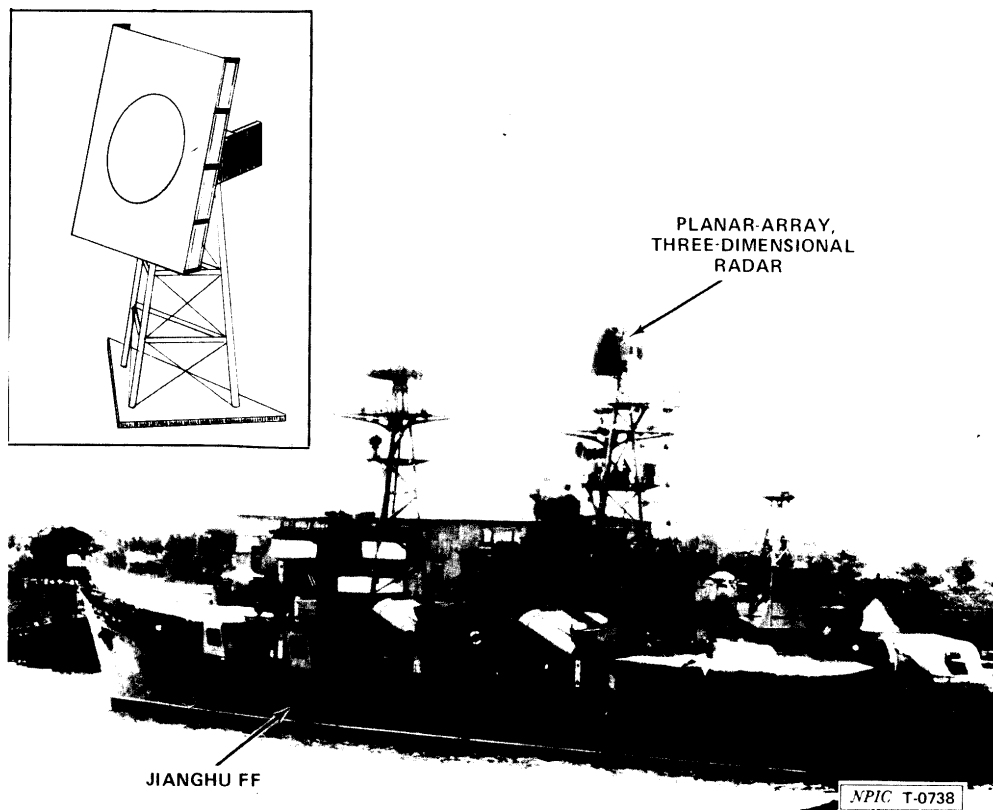
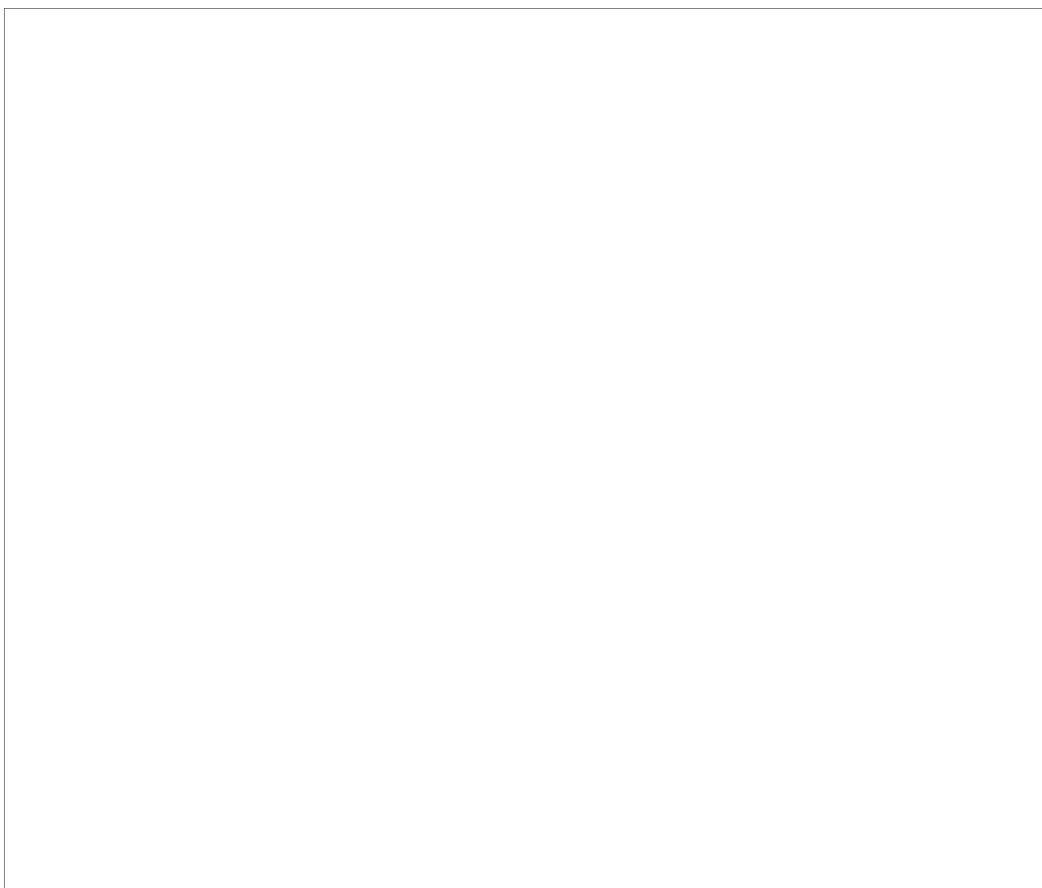


FIGURE 6. FIRST OBSERVATION OF NEW PLANAR-ARRAY, THREE-DIMENSIONAL RADAR ON JIANGDONG-CLASS FFG UNIT 1 (INBOARD OF JIANGHU FF), SHANGHAI NAVAL BASE AND SHIPYARD INTERNATIONAL. Inset is a provisional drawing of the radar.

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REFERENCES

IMAGERY

(TSR) All relevant KEYHOLE photography acquired between [REDACTED] was used in the preparation of this report.

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Small-Format Imagery

Figure No	Agency	Accession No	Date	Classification
2	CIA	1495126	May 78	SECRET/[REDACTED]
3	DoD	IRR Report No 6 842 5063 80	Mar 80	CONFIDENTIAL
6	CIA	1561201	Jul 80	SECRET/[REDACTED]

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DOCUMENTS

1. *Jane's Weapons Systems*, 1979-80, p 556 (UNCLASSIFIED)

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3. DIA, [REDACTED] DIAIAPPR 108-80, *CHINA: Development of New SAMs (U)*, 5 Jul 80 (TOP SECRET)

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4. DoD, IIR 6 842 5063 80, *(U) SAM Missile Pictured on PRCN Unit*, 3 Mar 80 (CONFIDENTIAL)

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**Extracted information is classified TOP SECRET [REDACTED]

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RELATED DOCUMENTS

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NPIC, [REDACTED] IAR-0059/79, *New Planar Phased-Array Radar at Jinxi (Chin-hsi), PRC (TSR)*, Oct 79 (TOP SECRET)

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(S) Comments and queries regarding this report are welcome. They may be directed to [REDACTED] or [REDACTED] Asian Forces Division, Imagery Exploitation Group, NPIC, [REDACTED]

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